

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A plain bearing comprising: a strong backing material substrate, the substrate ~~optionally having at least one of~~ a layer of a metallic bearing material thereon ~~and, the plain bearing having~~ a sliding layer of a polymer-based bearing material thereon, the polymer-based bearing material comprising a polymer-based matrix selected from the group consisting of a modified epoxy resin and a polyimide/amide resin, the matrix resin having contained therein particles of a metal powder in the range from 15 to 30.vol% and particles of a fluoropolymer ~~content lying in the range from approximately 2 to 8 to 15 vol%~~, and selectively including an addition selected from the group consisting of a ceramic powder in the range from 0.5 to 20.vol%, and, silica in the range from 2 to 15.vol%, ~~wherein a total solids content of the polymer-based bearing material does not exceed 35 vol%, and wherein~~ the polymer-based bearing material is adhered directly to ~~at least one of~~ the substrate ~~and to the layer of a metallic bearing material~~ by the adhesive properties of the matrix material.

2-36. (Canceled)

37. (Previously Presented) A plain bearing according to claim 1, wherein the modified epoxy resin consists of from 30 to 60w/w epoxy resin and 70 to 40w/w phenolic resin based on solid to solids content.

38. (Previously Presented) A plain bearing according to claim 1, wherein the modified epoxy resin also contains an amino resin.

39. (Previously Presented) A plain bearing according to claim 1, wherein the modified epoxy resin also contains vinyl resin.

40. (Previously Presented) A plain bearing according to claim 1, wherein the modified epoxy resin is prepared from an uncured epoxy resin matrix mixture, and the uncured epoxy resin matrix mixture contains two or more distinct epoxy resin constituents.

41. (Previously Presented) A plain bearing according to claim 1, wherein polyimide is a majority constituent in the polyimide/amide matrix resin.

42. (Previously Presented) A plain bearing according to claim 41, wherein the polyimide/amide resin also contains a vinyl resin constituent.

43. (Previously Presented) A plain bearing according to claim 1, wherein the metal powder is selected from the group consisting of tungsten, aluminum, copper, silver, tin, brass, bronze, stainless steel, and nickel.

44. (Previously Presented) A plain bearing according to claim 43, wherein the metal powder comprises a mixture of different metal powders.

45. (Previously Presented) A plain bearing according to claim 44, wherein the metal powder consists of a mixture of aluminum and tungsten metals, and the proportion of aluminum to tungsten is in the range between 30/70 and 70/30 Al/W volume%.

46. (Previously Presented) A plain bearing according to claim 45, wherein the proportion of Al to W is approximately 40/60% Al/W by volume.

47. (Previously Presented) A plain bearing according to claim 45, wherein the morphology of the W particles is nodular or rounded.

48. (Previously Presented) A plain bearing according to claim 45, wherein the Al powder is of flake or platelet morphology.

49. (Previously Presented) A plain bearing according to claim 1, wherein the metal powder comprises metal powder particles having a particle size in the range from 0.5 to 10 μ m.

50. (Previously Presented) A plain bearing according to claim 1, wherein the metal powder is selected from the group consisting of a mixture of aluminum and tin, a mixture of silver and copper, a mixture of copper and tungsten, and a mixture of silver and tungsten.

51. (Previously Presented) A plain bearing as claimed in claim 1, wherein the metal powder comprises metal alloy particles.

52. (Previously Presented) A plain bearing according to claim 51, wherein the metal alloy is selected from the group consisting of stainless steel, aluminum alloys, brass, and bronze.

53. (Previously Presented) A plain bearing according to claim 1, wherein the fluoropolymer is polytetrafluoroethylene.

54. (Canceled)

55. (Canceled)

56. (Previously Presented) A plain bearing according to claim 1, wherein the ceramic powder is selected from the group consisting of oxides, nitrides, carbides, silicates and sulfides.

57. (Currently Amended) A plain bearing according to claim 1, wherein the ~~at least one~~ addition selected from the group consisting of a ceramic powder and silica, further including ~~comprises a~~ ceramic powder, and the ceramic powder content ~~lies~~ lying in the range from 2 to 20 μ vol%.

58. (Currently Amended) A plain bearing according to claim 1, wherein the ~~at least one addition selected from the group consisting of a ceramic powder and silica, further including comprises silica, and the silica content lies~~ lying in the range from 4 to 10_{vol%}.

59. (Previously Presented) A plain bearing according to claim 1, wherein the silica comprises particles having a particle size from 20 to 50 nanometers.

60. (Previously Presented) A plain bearing according to claim 1, wherein the silica comprises reactive silica particles, each reactive silica particle having a surface with which at least one "-OH" group is associated.

61. (Canceled)

62. (Currently Amended) A plain bearing according to claim [[61]]1, wherein the solids content ~~of the at least one addition added to the polymer-based matrix~~ is from approximately 10 to 30_{vol%}.

63. (Currently Amended) A plain bearing according to claim 1, further including a silane material in the range of approximately 0.2 to 3_{vol%}.

64. (Previously Presented) A plain bearing according to claim 63, wherein the silane material is selected from the group consisting of: bis-(gamma-trimethoxysilylpropyl) amine and gamma-glycidoxypropyltrimethoxysilane.

65. (Canceled)

66. (Currently Amended) A plain bearing according to claim 1, wherein the ~~optional layer of~~ metallic bearing material is selected from the group consisting of an aluminum alloy and a copper alloy.

67. (Previously Presented) A plain bearing according to claim 1, wherein the polymer-based bearing material layer has a thickness of approximately 5 to 40 μ m.

68. (Previously Presented) A plain bearing according to claim 1, wherein the bearing material is deposited directly upon a strong backing material.

69. (Previously Presented) A plain bearing according to claim 68, wherein the bearing material has a thickness of from approximately 40 to 100 μ m.

70. (Previously Presented) A plain bearing according to claim 1, wherein the polymer-based bearing material is applied as a liquid to the substrate.

71. (Previously Presented) A plain bearing according to claim 70, wherein the liquid is sprayed.

72. (New) A plain bearing comprising: a strong backing material substrate, the substrate having at least one of a layer of a metallic bearing material, and a sliding layer of a polymer-based bearing material thereon, the polymer-based bearing material comprising a polymer-based matrix selected from the group consisting of a modified epoxy resin and a polyimide/amide resin, the matrix resin having contained therein particles of a metal powder in the range from 15 to 30 vol% and particles of a fluoropolymer content lying in the range from approximately 2 to 8 vol%, and selectively including an addition selected from the group consisting of a ceramic powder in the range from 0.5 to 20 vol%, and, silica in the range from 2 to 15 vol%, wherein the polymer-based bearing material is adhered directly to at least one of metallic bearing material and the plain bearing by the adhesive properties of the matrix material.

73. (New) A plain bearing comprising: a strong backing material substrate, the substrate having at least one of a layer of a metallic bearing material thereon and a sliding layer of a polymer-based bearing material thereon, the polymer-based bearing material comprising a polymer-based matrix selected from the group consisting of a modified epoxy resin and a polyimide/amide resin, the

matrix resin having contained therein particles of a metal powder in the range from 15 to 30 vol% and particles of a fluoropolymer content lying in the range from approximately 1 to 15 vol%, and selectively including an addition selected from the group consisting of a ceramic powder in the range from 0.5 to 20 vol%, and, silica in the range from 2 to 15 vol%, wherein the polymer-based bearing material includes a total content of solids addition not to exceed 35 vol%, and wherein the polymer-based bearing material is adhered directly to the plain bearing by the adhesive properties of the matrix material.